Active Extrusion Components

Programmable CNC Die
    To change the section of the extruded part In real-time or
    between parts
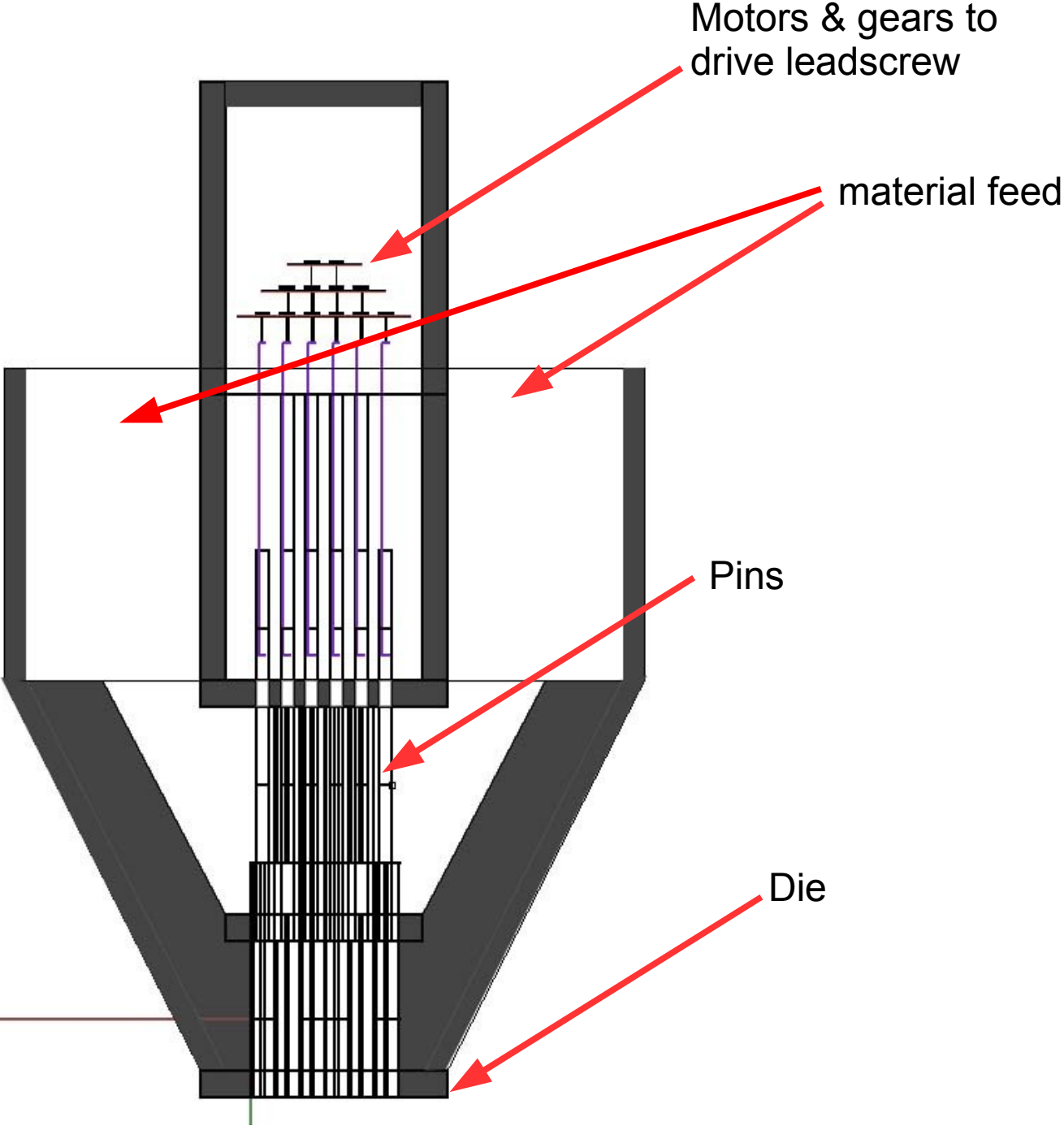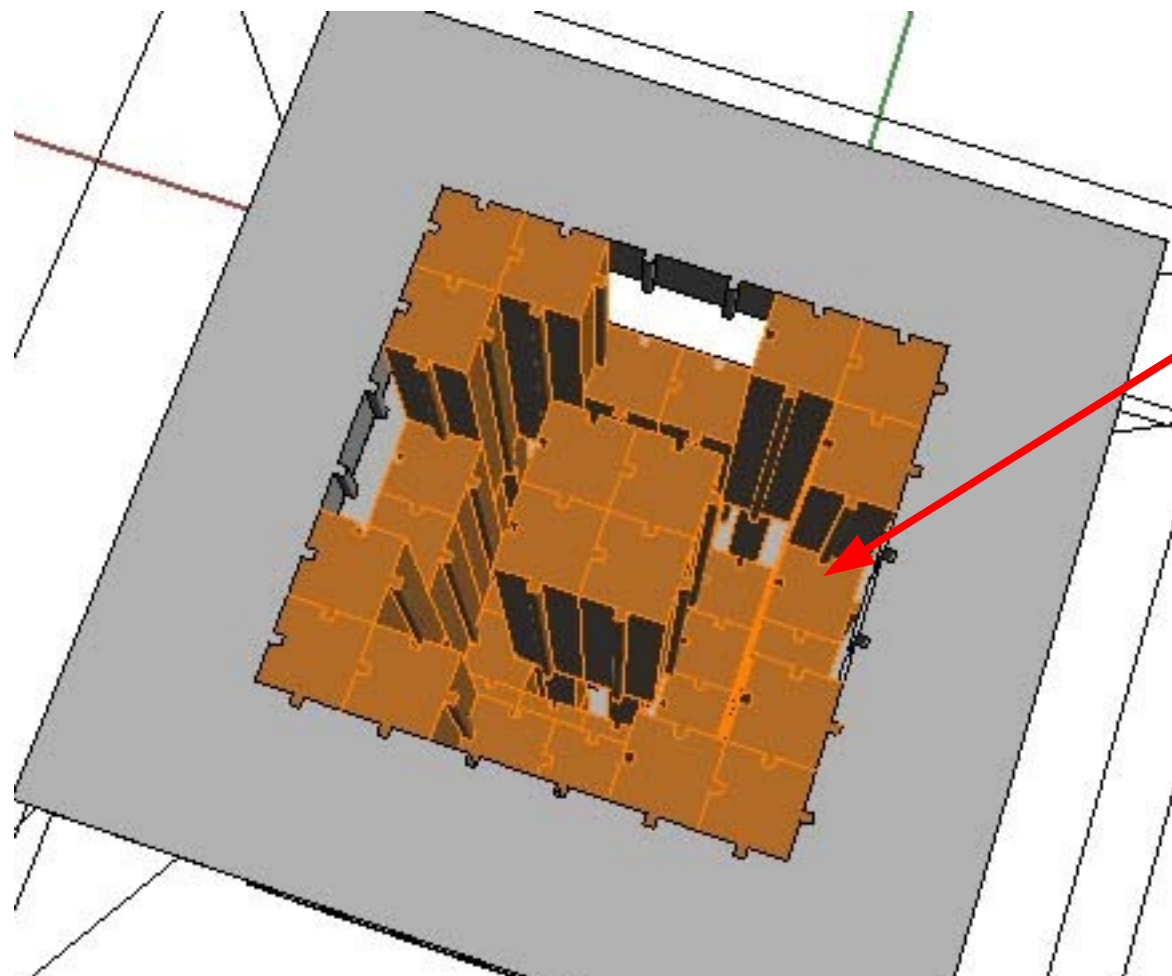
Quad-Barrel Extrusion Drive
    Applies variable pressure to each quadrant of the die to
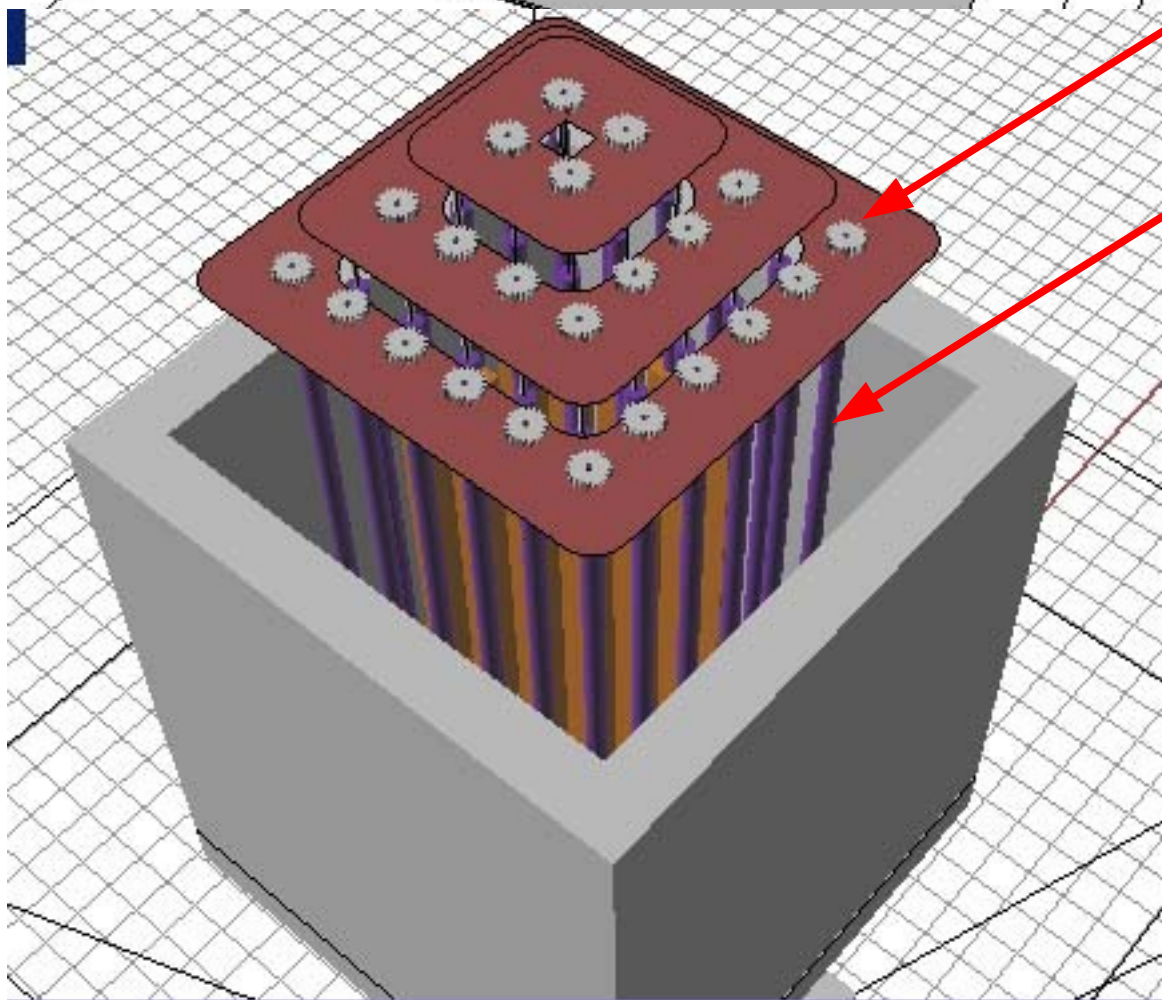   change direction of extruded part

Dynamic Material Mixer
    Dynamically controls hardener to material ratio

Programmable Extrusion Die

Motors & gears to drive leadscrew
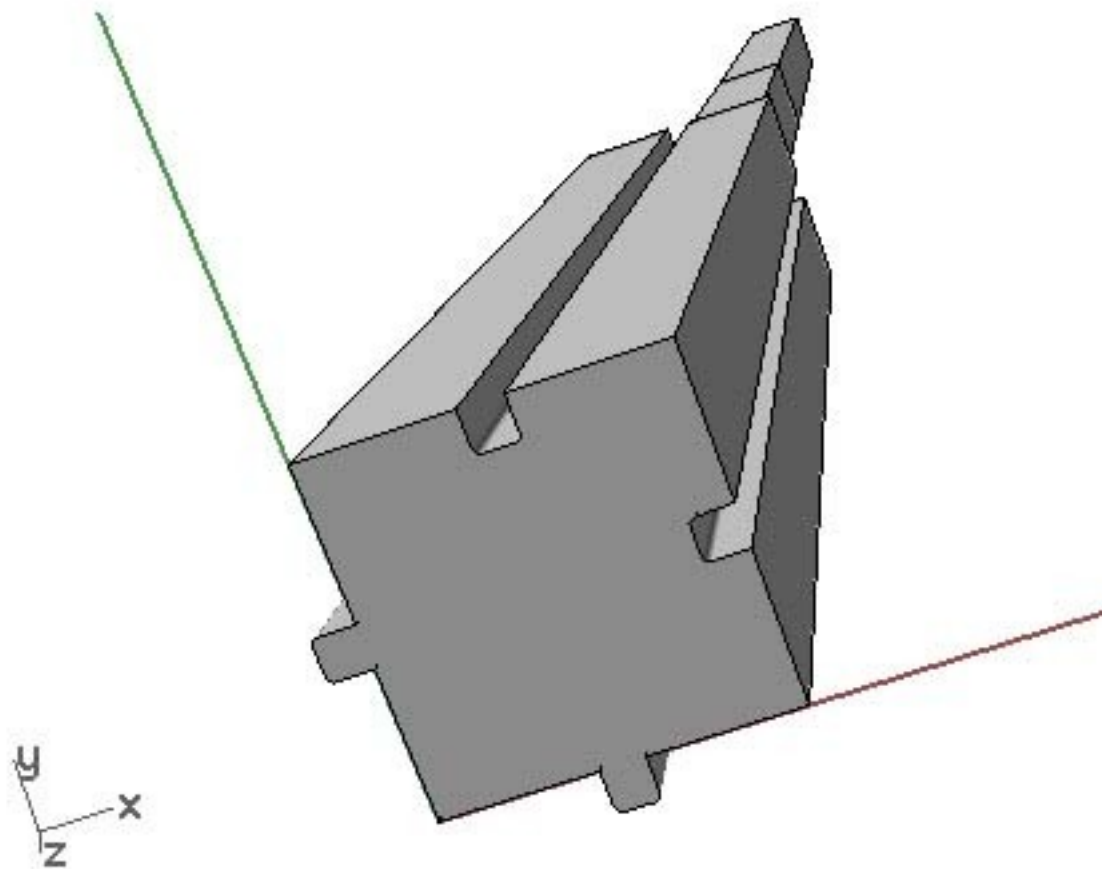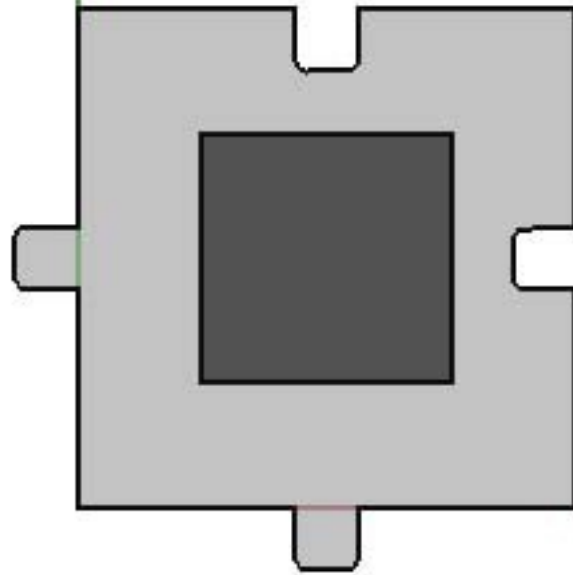
material feed

Pins

Die

Retracted
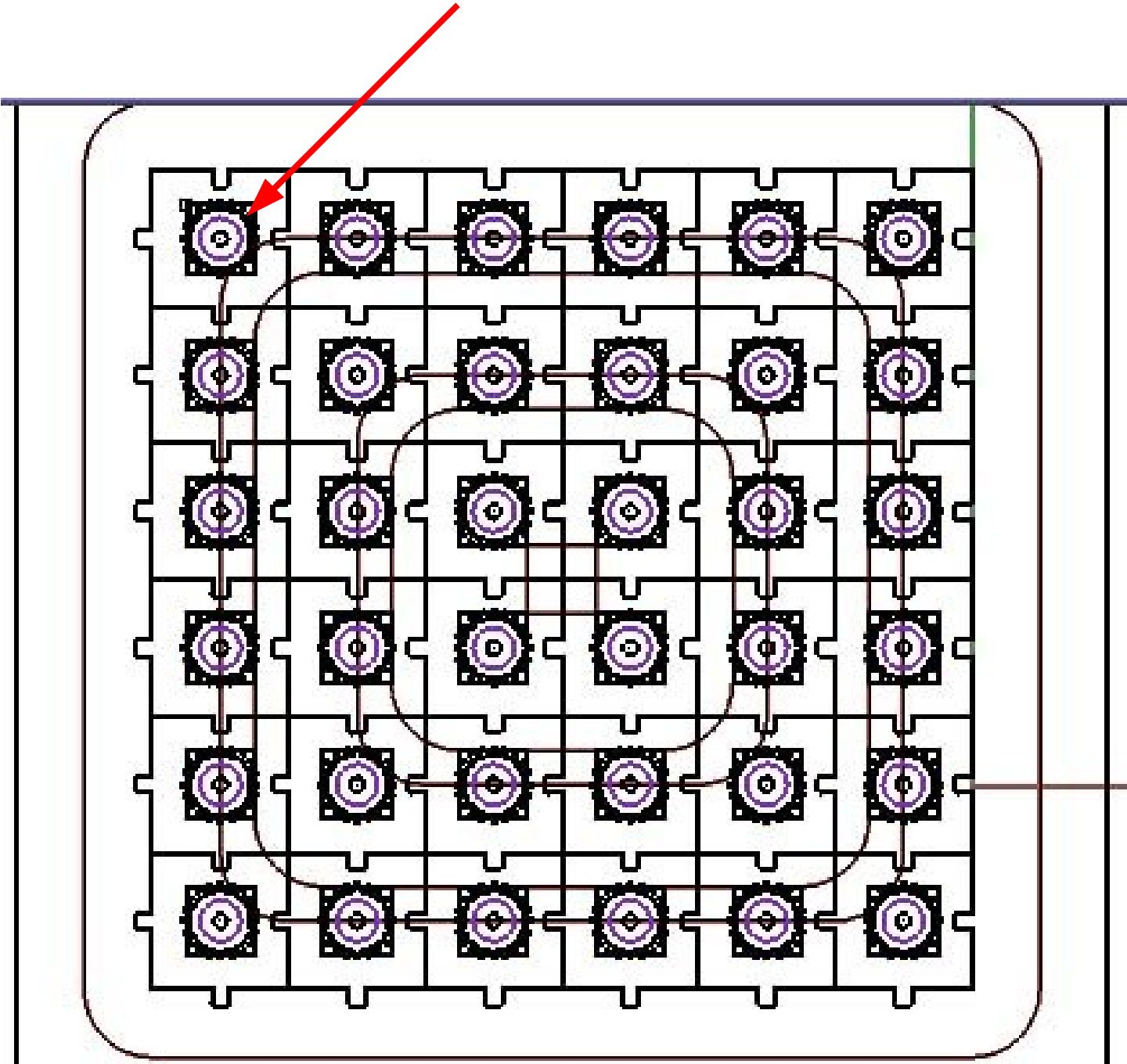pins

Gear and
motor
mount

Leadscrew
connected
to die pin

Detail of Pin

A 6x6 array of pins

36 stepper motors to retract pins to the open position
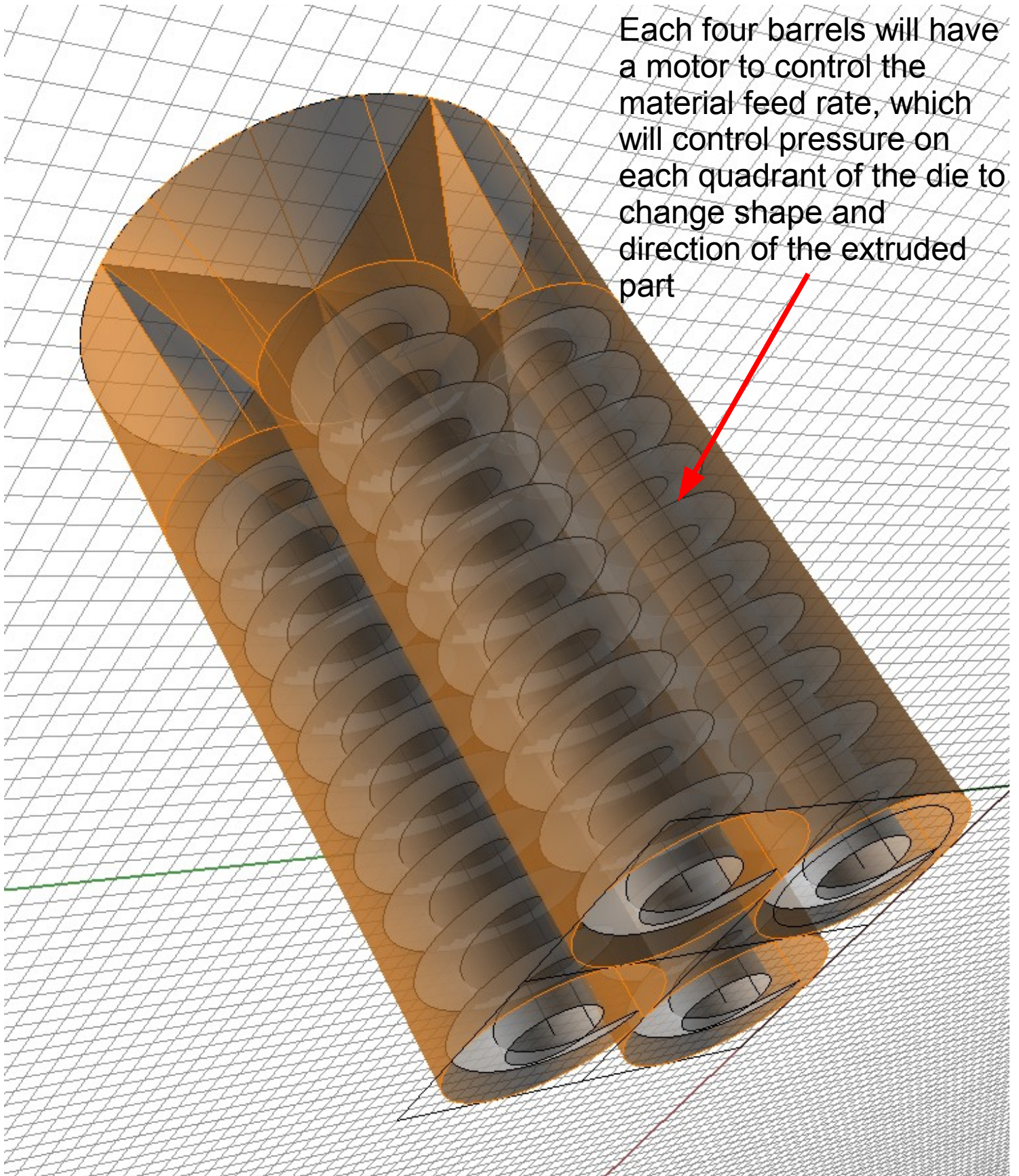by turning a gear that will be attached to a leadscrew
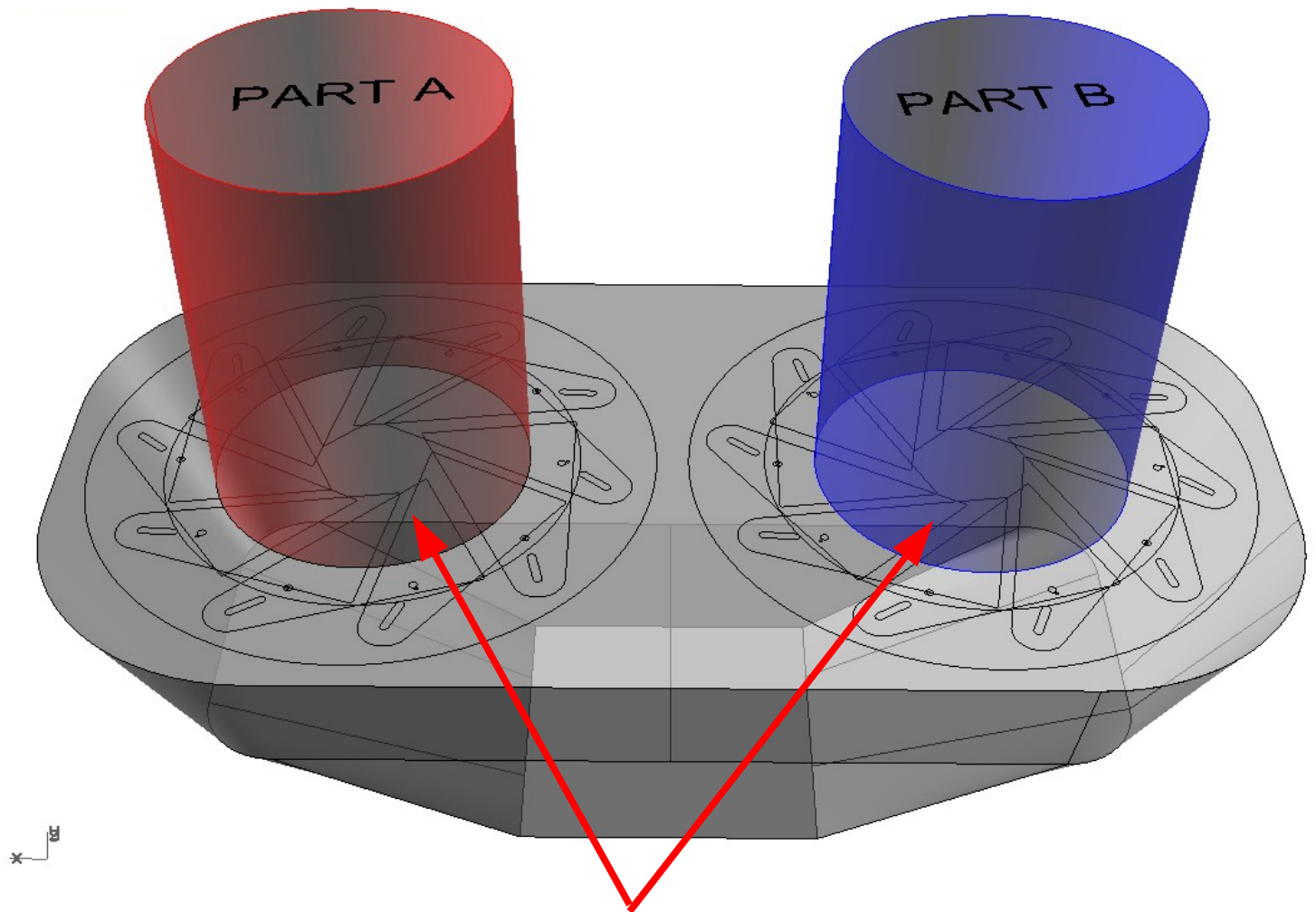
Quad Barrel Extrusion Drive

to control pressure on four sides which will change direction of extruded part

Each four barrels will have a motor to control the material feed rate, which will control pressure on each quadrant of the die to change shape and direction of the extruded part
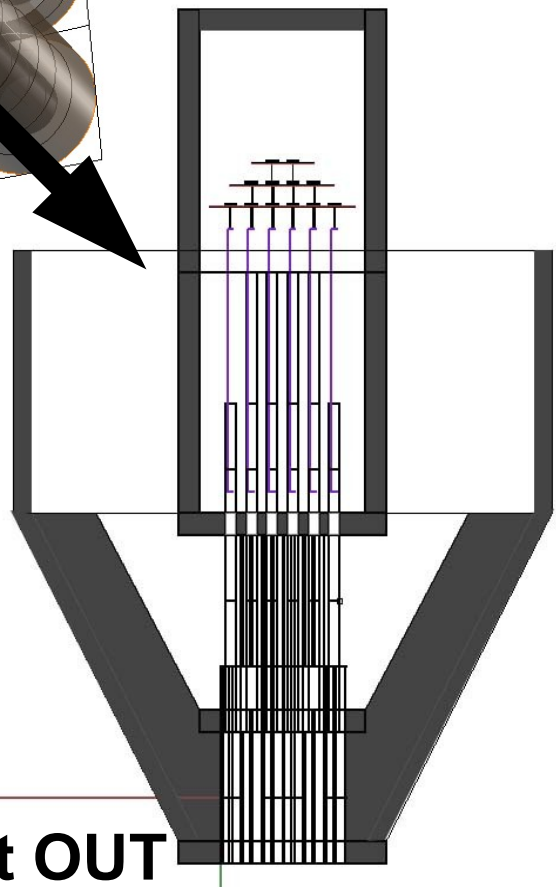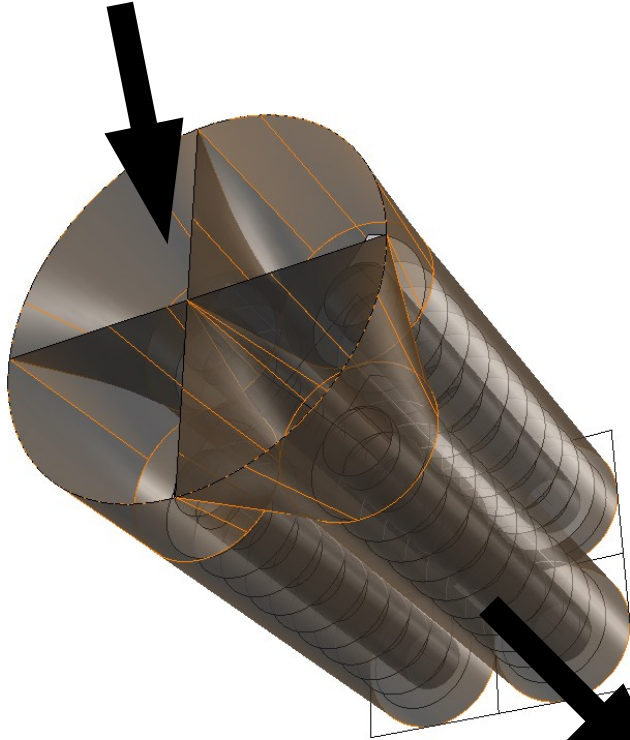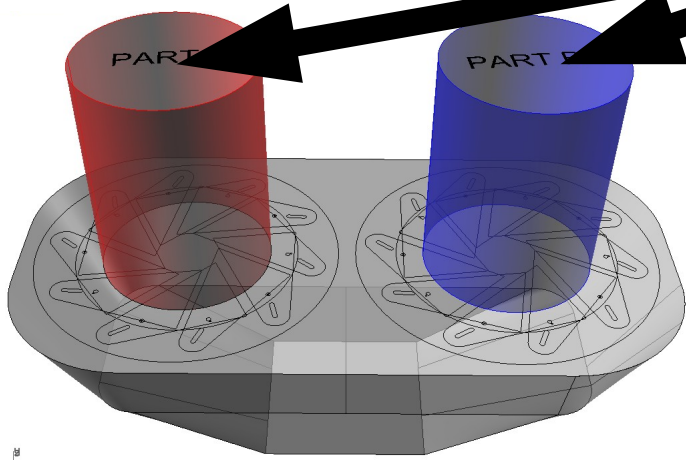
DYNAMIC MATERIAL MIXING

to control hardness of cured extruded part

PART A

PART B

apertures connected
to motors to control
mixing ratio

Material IN

PART

PART

Extruded Part OUT